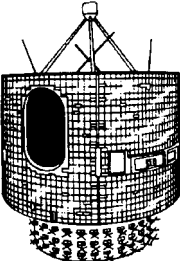


# GOES 3

## Geostationary Operational Environmental Satellite 3

Spacecraft Sketch	Mission Objective
	The objectives of the Geostationary Operational Environmental Satellite (GOES 2 & 3) missions are to maintain a geostationary satellite system which provides continuous observation of the atmosphere on an operational basis. The GOES system is principally designed to meet observing requirements supporting local short-term weather forecasting and warning devices. Winds estimated from satellite cloud motion observations can contribute to longer range forecasting. The system also provides for collection of environmental data from remote data collection platforms and distribution of raw and processed environmental data to regional ground stations.

TYPE OF MISSION	PROGRAM OFFICE	PROJECT LEAD CENTER	MANAGEMENT APPROACH	S/C CONTRACTOR	I&T CONTRACTOR
METEORO-LOGICAL	APPLICATIONS	GSFC	OUT-OF-HOUSE	FORD	FORD

Payload Description
The Geostationary Operational Environmental Satellite (GOES 1,2&3) payload, a follow-on to the Synchronous Meteorological Satellite (SMS 1&2) payload, consists of a Visible and Infrared Spin-Scan Radiometer (VISSR) System for infrared (IR) and highresolution visible photography, a Space Environment Monitor (SEM) System that includes various scientific sensors designed to continuously measure the solar emission activities, and a data collection system (DCS). The GOES 1,2&3 is a spin-stabilized and cylindrically shaped spacecraft with the support structure extending radially out from the thrust tube and affixed to solar panels which form the outer walls of the spacecraft and provide electrical power. Located between the thrust tube and solar panels are station keeping and dynamics control equipment, batteries, and most of the equipment for one of the instruments. The attitude and spin rate are maintained by two sets of thrusters which are mounted around the spacecraft equator and are ground command activated. The telemetry and command subsystems use both UHF and S-Band frequencies, plus VHF which is used during launch and as the backup for the primary subsystem after the spacecraft is in synchronous orbit.

INSTRUMENT NAME	ACRONYM	PI AFFILIATION	PRINCIPAL INVESTIGATOR	I&T CONTRACTOR
SPACE ENVIRONMENT MONITOR	SEM	NOAA-ERL	H. LEINBACH	FORD
VISIBLE 8 INFRARED SPIN-SCAN RADIOMETER	VISSR	NOAA-NESS	NESS STAFF	SBRC

### Instrument Descriptions

The GOES 3 Space Environment Monitor (SEM) consists of three sensors which monitor the energy level and quantity of energetic particles, the intensity of solar X-ray radiation, and the magnitude and direction of the magnetic field. The system consists of a solar energetic particle sensor, an X-ray sensor and a magnetometer sensor. The solar energetic particle sensor consists of one omnidirectional spectrometer and one directional spectrometer solid-state detector used in a multiple arrangement to monitor protons, alpha (flux) particles and electrons during both solar illumination and solar eclipse. The X-ray sensor is a simple type using ion chamber detectors which operate only during solar illumination to monitor solar X-ray emission. The magnetometer sensor consists of flux gate sensors that measure the direction and magnitudes of the three orthogonal magnetic field components external to the spacecraft. A calibration mode is provided to verify the basic operation of all three SEM sensors.

The GOES 3 Visible and Infrared Spin-Scan Radiometer (VISSR) is designed and built by SBRC using technology introduced in the Landsat 1 Multispectral Scanner. The instrument provides day and night observations of cloud cover and earth/cloud radiance measurements for use in operational weather analysis and forecasting. The spinning spacecraft provides the eastwest line scan motion while a step scan mirror provides north-south adjustment. A large optical system serves both visible and infrared channels. Cooling is provided by a two-stage radiative cooler.

### Launch

6/18/77(2)

6/16/78(3)